

WHAT IS CLAIMED IS:

1. An oligodeoxynucleotide (ODN) library comprising a plurality of oligodeoxynucleotides of specific length, at least one of the oligodeoxynucleotides comprising said ODN library being capable of interacting with a target genomic DNA, mRNA or protein when inserted into a DNA expression vector with the specific calling sequence for said oligodeoxynucleotide being embedded in said expression vector capable, said expression vector being capable of being introduced into a target cell to produce at least one of said oligodeoxynucleotides when induced by exposure to a chemical agent for interacting with genomic DNA, mRNA or protein with observable result.

2. A process for identifying and isolating an oligodeoxynucleotide comprising the steps of:

utilizing the ODN library of claim 1 to express a plurality of copies of at least one said oligodeoxynucleotide in the target cell;

growing the target cells into a colony of cells;

dividing the colony into paired colonies;

exposing one of the paired colonies to a chemical agent capable of inducing expression of said at least one oligodeoxynucleotide by the cells of the exposed colony, causing the expressed oligodeoxynucleotide to interact with genomic DNA, mRNA or a protein to alter expression of a gene;

observing the result in said exposed cells; and

sequencing the DNA of the cells of the unexposed colony to identify the sequence of the library oligodeoxynucleotide that caused alteration of the gene.

3. The method of claim 2 wherein said cells are bacteria strain DH5 α Pro.

4. The plasmid pssXG.

5. The plasmid of claim 4 comprising a PBS having the sequence 5'-TGGTTCGTCCGAG-3' [Seq. ID No. 3].

6. A cell having the plasmid of claim 4 transformed therein.

7. A prokaryotic cell having the plasmid of claim 4 transformed therein.

8. The plasmid of claim 4 comprising a sequence coding for *in vivo* expression of a single-stranded DNA enzyme targeted to the bacterial FtsZ gene.

9. The plasmid of claim 8 wherein the single-stranded DNA enzyme is specific for a GU site at position 880 of the bacterial FtsZ gene.

10. The plasmid of claim 8 wherein the single-stranded DNA enzyme comprises 5'-N₁-GGCTAGCTACAACGA-N₂-3' [Seq. ID No. 7] where N₁ and N₂ represent any sequence of nucleotides ranging in size from about seven to about ten nucleotides that target a specific RNA.

11. A cell having the plasmid of claim 8 transformed therein.

12. A single-stranded DNA enzyme comprising a 15 nucleotide catalytic domain flanked by random RNA target-binding domains of between about 7 and about 10 nucleotides each.

13. The single-stranded DNA enzyme of claim 12 wherein said catalytic domain comprises the sequence 5'-N₁-GGCTAGCTACAACGA-N₂-3' [Seq. ID No. 7], where N₁ and N₂ represent any sequence of nucleotides ranging in size from about seven to about ten nucleotides that target a specific RNA.

14. A plasmid having the DNA enzyme of claim 12 contained therein.

15. A cell having the plasmid of claim 14 transformed therein.